

Measuring the impact of competitive advertising environment and ad-exposure time on 3D posters' effectiveness

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Abstract The present study focuses on the impact of competitive advertising environment and ad-exposure time on the effectiveness of 3D posters. A 3D poster is regarded as a traditional advertising poster that contains an additional three-dimensional element (e.g., paper-crafts, 3D installations or real objects). Two experiments indicated that 3D posters enhance consumers' attention to the ad and increase ad (unaided and aided) recall. Experiment 1 revealed the moderating role of competitive advertising in the relationships between 3D posters' design, attention to the ad, and ad (unaided and aided) recall. 3D posters seem to enhance attention and ad recall in the presence, rather than absence, of competing ads. Experiment 2 highlighted that these positive effects are maintained even when consumers have less opportunity to process the posters. The study provides empirical evidence of the way that consumers process 3D posters and discusses significant managerial implications.

Keywords 3D posters, Advertising effectiveness, Competitive advertising environment, Exposure time, Experimental design

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INTRODUCTION

Out-of-home advertising is the oldest mass communication medium (Agnew, 1985; Henderson & Landau, 1980; Wilson, 1952). According to the Outdoor Advertising Association of America's (OAAA, 2015a) definition, out-of-home media are "*all media formats specifically intended to reach consumers outside the home*". The importance of out-of-home advertising is highlighted by the growing annual expenditures in such activities (OAAA, 2015b). Despite the increasing trend in out-of-home advertising, only a few studies (Taylor, Franke, & Bang, 2006; van Meurs & Aristoff, 2009; van Reijmersdal, 2011; Wilson & Till, 2011) have looked into potential approaches for improved results in out-of-home media (Taylor, 2012).

Poster advertising in particular is a relatively under-investigated topic. Scarce research on the topic suggests that the inclusion of both new product information and brand name in the copy text or in the headline of the poster speeds up brand recognition (van Meurs & Aristof, 2009). Moreover, the use of shock in poster advertising enhances consumers' attention to the ad and raises ad awareness (recall and recognition, Dahl, Frankenberger, & Manchanda, 2003). Also, an historical approach to poster advertising indicated the pivotal role of posters in the success of US governmental World War II advertising campaigns (Witkowski, 2003). Although, all the aforementioned studies shed light on some very important issues regarding the effectiveness of poster advertising, they concentrate on two-dimensional posters, leaving three-dimensional posters unexplored.

In the context of the present study, a 3D poster is a traditional advertising poster that contains an additional three-dimensional element (e.g., paper-crafts, 3D installations or real objects). According to Hutter (2015), the majority of ambient out-of-home advertisements contains additional 3D elements, which alter the visual aspects of the ads. The additional 3D elements could be oversized, undersized or of similar size to the original images. For instance, a 'huge' 3D bubble of 'gum' has been added to Big Babol's poster¹ in Qatar showing a child blowing a bubble of gum (MediaMe, 2008). In another example the entertainment company FOAM² designed a 3D paper-craft white horse mounted on an advertising poster, announcing an upcoming band in East London (Lucas, 2011). Also, a series of 3D posters was designed to increase public awareness of the Avondale Community Gardens in Auckland, New Zealand. 3D paper-craft objects (e.g., hands holding tomatoes, garden tools) were added to the posters, replacing the corresponding images (Lafaele, 2012). In a similar approach, the present study replaces visual elements with similar sized real objects to investigate the differential effects of three-dimensional (vs. two-dimensional) elements on poster advertising effectiveness.

Despite the proliferation in the use of 3D posters in recent years (Hutter, 2015), the effectiveness of 3D advertising was confined mainly to the internet milieu (Edwards & Gangadharbatla, 2001; Grigorovici & Constantin, 2004; Keng & Liu, 2013; Li, Daugherty, & Biocca, 2002), and to a lesser extent in the context of out-of-home advertising (de Boer, Verleur, Heuvelman, & Heynderickx, 2010; Kovačič, 2012). Findings in the latter context indicate that autostereoscopic 3D out-of-home displays affect attitude towards the brand (De Boer et al., 2010), while 3D lenticular posters have a positive impact on consumers' attention to the ad (Kovačič, 2012). None of the aforementioned studies looked into the role of competitive advertising

1 http://www.mediame.com/en/image_media/ambient/big_babol_xxl_ballon_poster_3

2 <https://www.creativereview.co.uk/cr-blog/2011/july/dry-the-river-3d-fly-posters/>

environment and ad exposure time on awareness (recall and recognition) of the 3D poster (ad) and the advertised brand. Although Donthu, Cherian and Bhargava (1993) underlined the potential negative relationship between competing advertising and out-of-home advertising effectiveness, they did not provide empirical evidence. Similarly, although the key role of the ad exposure time in the recall of incongruous advertising messages overall has been discussed (Houston, Childers, & Heckler, 1987), there is no evidence on the applicability of these findings in the field of out-of-home advertising.

Hence, it is the purpose of the present study to fill this research gap. We use two experiments in order to evaluate the role of (1) the competitive advertising environment and (2) ad exposure time on the awareness (recall and recognition) of the 3D poster (ad) and the advertised brand. The objective of the first experiment in particular is to investigate the impact of a 3D element (being an incongruity in the schema that consumers hold for poster advertising) on advertising effectiveness, under different levels of competitive advertising (zero and high), when exposure time is up to two minutes. In the second experiment, we aim to replicate and extend the findings of the first experiment, when the ad exposure time is limited to twelve seconds. The present study employs the schema theory to assess the effectiveness of 3D posters. It provides a framework for understanding the effects of 3D, salient and incongruous ad executions on explicit memory measures (recall and recognition, Heckler & Childers, 1992; Houston et al., 1987).

The remainder of the paper is structured as follows. It begins with a review of literature on key issues, focusing on 3D posters and schema theory. Then the research hypotheses, the methodology and the results of the first study are presented. The findings of the first study establish the theoretical background for the formulation of the hypothesis in the second study. The methodology and the results of study 2 follow. The paper concludes with a discussion of the findings, the theoretical and managerial implications, as well as directions for future research.

LITERATURE REVIEW

Three dimensional advertising elements - 3D posters

Three-dimensional advertising elements and product presentations have mainly attracted the attention of internet marketing researchers. According to them, 3D elements have been found to enhance consumers' positive responses to the product and can be critical to the success of online retailers (Lee, Li, & Edwards, 2012). Particularly, 3D product visualisations lead to higher brand attitude accessibility and attitude confidence in comparison with 2D product visualisations (Lee et al., 2012). Enhanced information quality of 3D product presentations leads to increased website trust and satisfaction (Algharabat & Dennis, 2010a). In the same vein, 3D advertising not only enhances product knowledge and brand attitude in a virtual internet environment (Li et al., 2002) but it also reduces consumers' perception of risk associated with online shopping (Ha, 2005). The superiority of 3D elements could be attributed to the 3D authenticity, "*a psychological state in which 3D virtual objects are perceived as actual objects in a sensory way*" (Algharabat & Dennis, 2010b, p. 101). Furthermore, the novelty of both 3D advertising (Yim, Drumwright, & Cicchirillo, 2012) and 3D product presentations (Edwards & Gangadharbatla, 2001) seems to be a key factor in consumer purchase decisions and can explain the outperformance of 3D elements.

Despite the extensive use of 3D advertising in recent times, there is a dearth of research extending the aforementioned findings to the out-of-home media context. According to Hutter (2015), the addition of 3D elements to traditional out-of-home media, such as posters, is the most frequently used category of ambient out-of-home advertising, with a percentage of 62.4%. However, only Kovačič (2012) threw light on the influence of 3D elements (i.e., 3D lenticular printouts) on consumers' attention to posters, indicating a positive relationship. Furthermore, De Boer et al. (2010) found that autostereoscopic 3D out-of-home displays exert direct positive effects on attitude towards the brand. None of the aforementioned studies examined the impact of competitive advertising environment and ad exposure time on the awareness (recall and recognition) of 3D posters and the advertised brands.

Schema theory

The effect of 3D elements on advertising effectiveness is examined in light of the schema theory (Anderson, 1994; Bartlett & Burt, 1933), and more specifically, of incongruity literature (Heckler & Childers, 1992; Lee & Mason, 1999; Meyers-Levy & Tybout, 1989). According to schema theory, memory is constructed based on schemas - knowledge structures which organise the information (e.g., objects, facts, images, stories, events and scenes) - and store it in the long-term memory (Mandler, 2014). Schemas are defined as “*complex knowledge structures, which can be regarded as informal, unarticulated theories about objects, situations and events*” (Meyer, Reisenzein, & Schützwohl, 1997, p. 253). New information is coded either in the existing schemas (assimilation), or in new schemas, which are created to store this new information (accommodation, Mandler, 1982, 1993). Schemas form a person's expectations and perceptions of the pattern in future and past events (Hastie, 1981).

Schema incongruity “*is a mismatch between a stimulus element (e.g., product, brand, endorser, music, or any execution element in an ad) and the existing schema that one holds about the advertising stimulus*” (Lee & Schumann, 2004, p. 59). According to Guido's dichotic theory of salience (1998, p. 114), a stimulus that is incongruent, in a certain context to a perceiver's schema, could be regarded as in-salient. The in-salient processing follows a bottom-up process, starting as a response to a specific external (salient/ incongruent) stimulus. However, it exceeds automatic processing; it is a competitive process that can increase ad and brand awareness only at the expense of other competitive advertisements. In other words, an advertisement should establish a clear differentiation among the competitive ads (taking into consideration the context and the relevant schemas possessed by perceivers), in order to be considered salient/incongruent. The salience of 3D posters can be explained by the principle of unusuality which is described by Guido (2001). The salience of a 3D poster can be regarded as an incongruity between a perceiver's existing schema for out-of-home advertisements and the nature of a 3D poster. The present study is, to our knowledge, the first to apply schema theory in order to explain the effect of 3D posters on the awareness (recall and recognition) of the ad and the brand.

STUDY 1

Formulation of hypotheses

The difficulty of attracting consumers' attention seems to be one of the key challenges faced in out-of-home advertising (Lichtenthal, Yadav, & Donthu, 2006).

Out-of-home advertising messages are directed towards an audience which dedicates limited time to pay attention to, and even less time to elaborate on, the advertising information (van Meurs & Aristoff, 2009; Wilson & Till, 2008). Thus, effective out-of-home advertising design should be built on a strong creative concept that grabs the attention and is memorable (Chafkin, 2007). Novel and creative executions attract consumers' curiosity and increase their attention to out-of-home advertising (Fitts & Hewett, 1977; Hewett, 1975). When the incongruity of new and novel knowledge exceeds a threshold, it generates surprise (Meyer et al., 1997; Reisenzein, 2000). Then, the person's attention focuses on the unexpected event, the source of surprise (i.e., the 3D element). Indeed, previous research indicates that drivers pay more attention to the billboards with cutout extensions (PRS, 1983), and that 3D lenticular elements increase consumers' attention to a poster (Kovačić, 2012). Thus, the following hypothesis is formulated:

H1 *3D posters trigger greater attention, compared to traditional posters.*

Unusual and creative posters intrigue consumers, probably because they are less familiar and often unexpected, so they are recalled more easily than the traditional ones (Solomon, 2003). Indeed, recall of out-of-home advertising may be increased through the use of unusual executions, such as using black and white ads, when competitive posters are in colour (Donthu et al., 1993). Similarly, Bhargava, Donthu and Caron (1994) showed that the use of artwork on billboards leads to significantly higher recall scores than the use of photographs. Given that in their study the use of artwork was less common (23% of the total number of the billboards tested) than the use of photographs (77% of the total number of the billboards tested), the increased recall can be attributed to the novelty of the use of artwork on the billboards.

Moreover, the review of the relevant literature reveals that the use of incongruent elements or unexpected executions in ads, not only triggers consumers' attention but also increases ad and brand awareness (Arias-Bolzmann, Chakraborty, & Mowen, 2000; Dahlén, 2005; Guido, 1998; Heckler & Childers, 1992; McQuarrie & Mick, 1996; Meyers-Levy & Sternthal, 1991). Adding unexpected elements to ads can improve ad memorability (Arias-Bolzmann et al., 2000; Heckler & Childers, 1992). Unexpected (incongruent) information is easier to recall than the expected (congruent) information (Guido, 1998; Heckler & Childers, 1992). Unexpected information is maintained in the memory of the recipient of the advertisement for a longer time compared to the expected information (Lee & Mason, 1999). Moreover, Guido (1998) suggested that an incongruent advertising message improves brand recognition. This happens because the recipient of the advertisement, in his/her effort to conceive the incongruity, creates new combinational paths in the knowledge he/she possesses for the brand (Sjödén & Törn, 2006). Thus, it is assumed that a 3D poster is likely to lead to more detailed processing of the advertising content and the associated brand information. The following hypotheses are advanced:

H2 *3D posters achieve greater i) unaided ad recall and ii) aided ad recall compared to traditional posters.*

H3 *3D posters achieve greater i) unaided brand recall, ii) aided brand recall, iii) brand name recognition and iv) brand package recognition, compared to traditional posters.*

One of the most important factors that positively influences posters' recall is a good location (Bhargava et al., 1994; Donthu et al., 1993). Highways are considered an ideal place for posters (to be located), since they provide high frequency of exposure to a great amount of commuters (Donthu et al., 1993). However, the presence of numerous posters with complicated, inconsistent, and contradictory advertising messages may restrict the ability of consumers to recall the product promises. Humans have finite abilities to elaborate information and these abilities highly depend on their time availability (Miller, 1956). Prior research has highlighted the detrimental effects that a competitive advertising environment has on consumers' ad and brand recall (Keller, 1987, 1991). A competitive advertising environment confuses consumers and decreases their capability to recall brand claims (Burke & Srull, 1988).

According to Guido (2001), an advertisement should establish a distinct differentiation among the competitive ads in order to be considered salient/incongruent. Furthermore, incongruent stimuli that create surprise constitute a privileged way to draw consumers' attention when the communication environment is competitive (Derbaix & Pham, 1991; Derbaix & Vanhamme, 2003). An incongruent element motivates the advertising audience to process the message communicated and enhances memory traces for the ad (Heckler & Childers, 1992). Hence, it is assumed that when the level of competitive advertising is high, a 3D poster exerts a direct positive effect on advertising effectiveness. On the contrary, when there are no competing ads and the ad memory trace is not confused, a 3D poster has little effect on memory, because recall and recognition are already high. It is, therefore, hypothesised that:

- H4** *3D posters trigger greater consumer attention to the ad in the presence of, rather than the absence of, competing ads in the advertised brand's product category.*
- H5** *3D posters achieve greater i) unaided and ii) aided ad recall in the presence of, rather than the absence of, competing ads in the advertised brand's product category.*
- H6** *3D posters achieve greater i) unaided brand recall, ii) aided brand recall, iii) brand name recognition and iv) brand package recognition in the presence of, rather than the absence of, competing ads in the advertised brand's product category.*

Methodology

Design and sample

The experimental design of study 1 was a 2 (3D poster or 2D poster) x 2 (different levels of competitive advertising: zero or three competing posters) x 2 (two product categories: toothpaste and beer). The type of poster and the level of competitive advertising served as between-subject variables, whereas the product category served as a within-subject variable. According to Keller (1987, 1991), the specific levels of competitive advertising (zero vs. three competing ads) adequately represent the absence (zero) and the high level (three posters) of competitive advertising. The participants were 252 undergraduate students (120 males and 132 females) aged between 20 and 21 ($M = 20.86$) attending a large public university in northern Greece. The participants took part in a laboratory study that was conducted at the university.

Ad stimuli

The posters promoted two product categories (toothpaste and beer). These product categories were selected because participants were familiar with them. In this manner, the generalisability of the findings increased, reducing any idiosyncratic effects (Jackson & Jacobs, 1983). Unfamiliar brand names (each poster promoted a different brand) were used to avoid any potential confounds with known brand names for which participants may have had different prior experiences or evaluations (Macklin, 1994). The posters advertised actual brands that were not offered in Greece. Brands within product categories were basically unique in their positioning, so that claims across brands in a product category were different (Keller, 1991).

For the purpose of the study, ten posters, five in each product category, were created. Specifically, all ten posters, had an identical A3 page layout (29.7 x 42.0 cm) in a horizontal format, were image-oriented, with a photo covering the whole ad, a slogan appearing on the top-left corner, two brand claims on the bottom-left corner and the package of the advertised brand on the bottom-right corner. Eight of the ten posters were designed in a 2D format. Additionally, two posters, one for each product category (the two target posters), were re-designed, with a 3D element, apart from the traditional flat layout. Two (one per poster) real, small-sized objects were used as 3D elements, namely, a key and a small bouquet of natural herbs. A pretest with 42 students as participants showed that the two 3D posters compared to two 2D posters led to higher levels of perceived surprise, novelty and unusuality.

Procedure

The experiment was conducted over a two-day period. On the first day, the participants were invited to watch and evaluate a ten-minute video (documentary), in order to obscure the true purpose of the study. The participants were divided into eight (based on the 2 x 2 x 2 design employed in the experiment), almost numerically equivalent groups, and therefore the process was repeated eight times. Each group was encouraged to stay in a waiting room before being escorted to the video room. Following the procedure employed by Dahl et al. (2003), the waiting room was in fact a controlled experimental environment consisting of three big tables in a row, a small bookcase and the five posters (placed on the wall). The posters were placed side by side. The order in which the two target posters (one for the toothpaste and one for the beer) were presented remained the same: the toothpaste was always placed second and the beer fourth. The order of the presentation of the other posters was randomised to eliminate order effects.

Each group of participants saw only a subset of five of the ten posters, namely, (a) a 2D toothpaste and a 2D beer poster, or (b) a 2D toothpaste and a 3D beer poster, or (c) a 3D toothpaste and a 2D beer poster, or (d) a 3D toothpaste and 3D beer poster, along with either three toothpaste- or three beer-related posters. This approach was adopted in order to ensure that participants would be exposed to the same number of posters, implement the same effort levels and remain unaware of the real purpose of the study. As in the experiment of Dahl et al. (2003), every group remained in the waiting room for two minutes. This was an adequate amount of time for the participants to be exposed to the posters.

The participants were then transferred to the second room where they watched a video (documentary), as a part of a classroom exercise. After the video ended, the participants were given a questionnaire for measuring their attitudes towards the documentary. They were also invited back the following day in order to successfully

complete the research. The day-after recall test of advertising effectiveness is often used in the advertising industry in order to measure ad memorability (Guido, 2001).

On the second day of the experiment, all of the participants were gathered in a classroom and were given a questionnaire to complete. The questionnaire addressed the issues of consumers' attention to posters, unaided ad recall, aided ad recall, unaided brand recall, aided brand recall, brand name recognition and brand package recognition. Having completed the questionnaire, the participants were briefed about the real purpose of the study.

Measures

The measures and questionnaire employed in the experiment replicate Dahl et al.'s (2003) study. The questionnaire first measured unaided ad recall by asking the participants to describe briefly the posters that they recalled having seen in the waiting room. The questionnaire also measured aided ad recall by asking participants to briefly describe the posters for beers and toothpastes that they recalled having seen during their stay in the waiting room. Consumers' attention to the ad was then measured by asking participants to indicate which of the posters they remembered having seen in the waiting room which had triggered their attention the most, and why. Participants were subsequently asked to write down the brand names that they recalled being advertised on a poster in the waiting room (unaided brand recall). Then aided brand recall was measured by asking the participants to write down the brand names of beers and toothpastes that they recalled being advertised in the waiting room. Finally, participants were asked to identify the two advertised brand names from a total of five randomly arranged brand names (brand name recognition), as well as to identify the two advertised brand packages from a total of five randomly arranged brand packages with omitted brand names (brand package recognition).

Two trained coders independently analysed the responses to the first three questions (regarding unaided and aided ad recall, as well as consumers' attention to the ad), identifying if participants correctly recalled the posters (with intercoder reliability at .96).

Findings

To test the effect of 3D posters on consumers' responses, a multivariate analysis of variance (MANOVA) was conducted, with 3D design (presence or absence) and the levels of competitive advertising (zero or three competing ads) as the independent variables, and consumers' attention to posters, unaided ad recall, aided ad recall, unaided brand recall, aided brand recall, brand name recognition and brand package recognition as the dependent factors (Table 1).

The first research hypothesis stated that a 3D poster may catch participants' attention to a greater extent than a traditional poster. Consistent with hypothesis 1, the participants in the 3D poster condition paid more attention to the poster ($M(SD) = .22(.41)$) than the participants in the traditional poster condition ($M(SD) = .06(.24)$) ($F = 15.01, p < .001$) (Table 1). Thus, H1 is supported. When they were asked why this particular poster captured their attention the most, the participants in the 3D poster condition identified the manipulated element (3D or 2D) more often ($M(SD) = .13(.34)$) than the participants in the traditional poster condition ($M(SD) = .02(.12)$) ($t = 3.56, p < .001$) as the main reason.

Hypothesis 2 posited that the presence of a 3D poster would enhance i) unaided ad recall, and ii) aided ad recall. In line with H2 i) and H2 ii), participants who viewed

TABLE 1 Effects of a 3D element and a competitive advertising environment on consumers' responses

Independent variables	Multivariate effects		Univariate effects													
	Wilks Lambda	F-Value	df	Attention	df	Unaided ad recall	df	Aided ad recall	df	Unaided brand recall	df	Aided brand recall	df	Brand name rec.	df	Brand pack. rec.
Main effects																
3D (presence/absence)	.802	7.297	1	15.01***	1	29.51***	1	6.56*	1	2.25	1	.46	1	11.31***	1	9.68**
Competitive advertising (zero/three ads)	.898	3.357	1	8.56**	1	.443	1	.270	1	.110	1	.701	1	.474	1	.954
Interactive effects																
3D * competitive advertising	.885	3.838	1	8.828**	1	26.36***	1	14.53***	1	2.71	1	3.61*	1	1.80	1	1.17

* p < .05, ** p < .01, *** p < .001

Statistically significant differences are marked with bold text

the 3D poster had greater unaided ad recall ($M_{3D}(SD) = .38(.49)$ vs. $M_{2D}(SD) = .11(.31)$, $F = 29.51$, $p < .001$) and aided ad recall ($M_{3D}(SD) = .21(.41)$ vs. $M_{2D}(SD) = .09(.29)$, $F = 6.56$, $p < .01$) (Table 1). Hence, H2 i) and H2 ii) are accepted.

According to hypothesis 3, 3D posters attain greater i) unaided brand recall, ii) aided brand recall, iii) brand name recognition, and iv) brand package recognition. However, the findings do not support H3 i) and H3 ii), since the exposure to a 3D poster did not increase either unaided brand recall ($M_{3D}(SD) = .03(.18)$ vs. $M_{2D}(SD) = .08(.27)$, $F = 2.26$, $p < .134$) or aided brand recall ($M_{3D}(SD) = .08(.28)$ vs. $M_{2D}(SD) = .08(.27)$, $F = .05$, $p < .831$). On the contrary, as hypothesised, exposure to a 3D poster had a definite positive impact on brand name recognition ($M_{3D}(SD) = .41(.49)$ vs. $M_{2D}(SD) = .20(.40)$, $F = 11.31$, $p < .001$), and brand package recognition ($M_{3D}(SD) = .38(.49)$ vs. $M_{2D}(SD) = .18(.39)$, $F = 9.68$, $p < .002$) (Table 1). Hence, H3 iii) and H3 iv) are supported.

Hypotheses 4, 5 and 6 stated that competitive advertising environment has a moderating effect on the relationship between a poster's 3D design and consumers' responses. Indeed, 3D posters have a greater facilitating effect on consumers' attention ($F = 8.83$, $p < .003$), unaided ad recall ($F = 26.36$, $p < .001$) aided ad recall ($F = 14.53$, $p < .001$), and interestingly on aided brand recall ($F = 3.612$, $p < .05$) in the presence, rather than absence, of competing ads in the product category (Table 1). Hence, hypotheses H4, H5 i), H5 ii) and H6 ii) are supported. On the contrary, there are no significant differences between participants in the competitive and non-competitive condition regarding the unaided brand recall ($F = 2.71$, $p < .11$), brand name recognition ($F = 1.80$, $p < .18$) and brand package recognition ($F = 1.165$, $p < .28$) (Table 1). Thus, hypotheses H6 i), H6 iii) and H6 iv) are rejected.

STUDY 2

Formulation of hypothesis

Participants in the first experiment were given adequate time (2 minutes) to elaborate on the advertising stimuli. When elaborative processing of an incongruent advertising message occurs, advertising information remains in the working memory for longer and it is more likely to be successfully recalled (Houston et al., 1987). Srull and his colleagues (Srull, 1981; Srull, Lichtenstein, & Rothbart, 1985) indicated that a shorter time for processing can reduce the message recipients' inferential ability to resolve the incongruity. In the same vein, Houston et al. (1987) found that the limited processing time (ten seconds) diminishes the superior memory effects of discrepant (incongruous) advertising messages. Thus, the purpose of the second experiment is to replicate the findings of experiment 1, by reducing participants' time of exposure to the posters.

The out-of-home message is directed towards a target consumer group whose attention is diverted elsewhere: it is distracted by other signs along the road, the car radio or phone, as well as conversation among passengers. Consumers have a limited time period, and as a result, have little opportunity to carefully process advertising messages (van Meurs & Aristoff, 2009). Hence, it could be hypothesised that when the exposure time is limited, the recipients do not have enough time to process the advertising stimuli and they are less likely to recall this information.

However, according to another stream of research (Lee & Schumann, 2004; Ratneshwar & Chaiken, 1991) when the exposure time is shortened, recipients

become more likely to use peripheral cues or heuristics, such as perceived credibility, attractiveness of the source, graphics used in the advertisements, and cosmetic variations of these graphics. Edwards and Gangadharbatla (2001) mentioned that a 3D element could be considered as a salient peripheral cue, a cosmetic variation. This might create a temporary novelty effect focusing recipients' attention on the advertising experience and not on product attribute information. Thus, it encourages the elaboration of the advertisement as a whole and not the processing of the product information per se. Hence, it could be hypothesised that the 3D creative elements will grab the consumers' attention, increasing ad recall. Overall, the following hypothesis is formulated:

H7 3D posters i) trigger greater consumer attention to the ad, ii) achieve greater unaided ad recall, and iii) achieve greater aided ad recall compared to traditional posters, even though exposure time is limited.

Study 1 indicated that exposure to a 3D poster did not increase either unaided or aided brand recall, when the elaboration time is up to two minutes [H3 i), H3 ii)]. Hence, it is expected that when the exposure time is less than two minutes, the presence of a 3D element will not affect the audience's ability to recall the advertised brands. Therefore, it is assumed that a 3D element will not affect aided or unaided brand recall when the exposure time is limited. Also, the assumption that the processing of the 3D element as a salient peripheral cue (Edwards & Gangadharbatla, 2001) focuses recipients' attention on the advertising experience and not on product attribute information leads to the supposition that 3D posters will not increase brand name and brand package recognition.

Methodology

Design and sample

For study 2, a single factor (3D poster vs. 2D poster) experimental design was used. Overall, 90 undergraduate and postgraduate students (36 males and 54 females, different from those participating in the first experiment) between the ages of 22 and 23 (22.40) recruited from various departments in a large public university in northern Greece participated in the second study.

Ad stimuli

Study 2 replicated the advertising stimuli of study 1. The same posters advertising the same two product categories - toothpastes and beers were used.

Procedure

Participants in the second study were divided into four groups. Each group consisted of almost the same number of participants. Each group saw only a subset of eight of the ten posters, namely, one version of each target poster (2D or 3D) and six competing posters for the two product categories. This approach was adopted in order to ensure that they would be exposed to the same number of posters, implement the same effort levels and not realise the real purpose of the study.

The process was kept identical for all four groups. Two field researchers entered the classroom at the beginning of class, asking for the attention of the students. Students were briefly informed about the process of the study. The two field

researchers were standing at a two-metre distance, holding a poster each and showing it to the participants for twelve seconds. At the end of the 12-second period, the participants were exposed to the next pair of posters. This process was repeated four times for each group. Eight out of the ten ads were shown in groups of two. According to Houston et al. (1987), an average person needs ten seconds to process both the pictorial and verbal elements in an advertisement. In this experiment, the participants were given twelve seconds because they were exposed to two different competitive posters. A pretest³ indicated that twelve seconds was long enough for the participants to see both the target and the competitive ad and to process just one of them. Each of the 90 participants was exposed to different combinations (one per product category) of posters. Thus, overall, 180 observations (84 of 3D posters and 96 of 2D posters) were included in the T-test.

Two hours later, at the end of class, the authors entered the classroom and handed the participants a questionnaire to fill in. The questionnaire was identical to the one used in the first experiment, referring to consumers' attention to posters, unaided ad recall, aided ad recall, unaided brand recall, aided brand recall, brand name recognition, and brand package recognition.

Findings

Study 2 replicated and extended the results of study 1, on the effect of a 3D element on poster advertising effectiveness. A series of t-tests was conducted to test the effects of the type of poster (3D or 2D) on consumers' responses. Hypothesis 7 posited that a 3D element enhances consumers' attention to the ad, unaided and aided ad recall, regardless of the duration of the audience's exposure to the advertising stimuli. Indeed, it seems that a 3D element significantly increases consumers' attention to the ad ($M_{3D}(SD) = .26(.44)$ vs. $M_{2D}(SD) = .06(.24)$, $t = 3.674$, $p < .001$), unaided ($M_{3D}(SD) = .54(.50)$ vs. $M_{2D}(SD) = .21(.41)$, $t = 4.759$, $p < .001$) and aided ad recall ($M_{3D}(SD) = .54(.50)$ vs. $M_{2D}(SD) = .21(.41)$ ($t = 4.759$, $p < .001$). Thus, the hypotheses H7 i), H7 ii) and H7 iii) are supported. As predicted, there are no statistically significant effects on brand package recognition ($M_{3D}(SD) = .50(.50)$ vs. $M_{2D}(SD) = .56(.50)$, $t = .835$, $p < .405$), unaided ($M_{3D}(SD) = .02(.15)$ vs. $M_{2D}(SD) = .06(.24)$, $t = 1.292$, $p < .198$) and aided brand recall ($M_{3D}(SD) = .02(.15)$ vs. $M_{2D}(SD) = .06(.24)$, $t = 1.292$, $p < .198$) (Table 2). Interestingly, 3D posters lead to higher levels of brand name recognition ($M(SD) = .43(.50)$) than traditional posters ($M(SD) = .22(.42)$) ($t = 3.045$, $p < .003$).

³ Overall 48 undergraduate students were divided into four random groups based on duration of exposure: 8 seconds, 10 seconds, 12 seconds or 14 seconds. All groups were exposed to two different posters and then they were asked to briefly describe what they could recall of their content. Two trained coders independently analysed the answers, by determining how many ad elements (photo, slogan, two brand claims, package and brand name) were correctly recalled (with intercoder reliability at .92). The findings indicated that 12 seconds was enough time for participants to see both posters, but to recall only one of them (they recalled 5.5 out of 6 ad elements). On the contrary, when the exposure time was either 8 or 10 seconds, the participants did not efficiently recall the posters, while when the exposure time was 14 seconds, participants managed to recall both of them. Particularly, the ANOVA statistics for the four groups are as follows: for the first poster $F = 40.43$, $p < .001$, $M_{8sec.}(DC) = 2.83(.58)$, $M_{10sec.}(DC) = 3.50(1.0)$, $M_{12sec.}(DC) = 5.50(.67)$, $M_{14sec.}(DC) = 5.50(.67)$, while for the second poster $F = 45.33$, $p < .001$, $M_{8sec.}(DC) = 1.33(.49)$, $M_{10sec.}(DC) = 1.58(.8)$, $M_{12sec.}(DC) = 2.42(.8)$, $M_{14sec.}(DC) = 4.58(.9)$.

TABLE 2 T-test of different creative executions (3D-traditional)

Factors	3D poster N = 84 M(SD)	Traditional (2D) poster N = 96 M(SD)
Attention	.26(.44)***	.06(.24)
Unaided ad recall	.54(.50)***	.21(.41)
Aided ad recall	.54(.50)***	.21(.41)
Unaided brand recall	.02(.15)	.06(.24)
Aided brand recall	.02(.15)	.06(.24)
Brand name recognition	.43(.50)**	.22(.42)
Brand package recognition	.50(.50)	.56(.50)

*p < 0.05, **p < 0.01, ***p < 0.001

Statistically significant differences are marked with bold text

CONCLUSIONS AND DISCUSSION

Out-of-home advertising has come a long way since the early days of hand-painting and two dimensional signs. Posters have a multi-dimensional layout, making use of new technology and innovativeness, such as three dimensional elements (Hutter, 2015). The present study builds on past research (Algharabat & Dennis, 2010b) and adds to our understanding of how a 3D element affects consumers' attention to the poster, as well as awareness (recall and recognition) of the poster and the advertised brand.

3D posters seem to be more effective than traditional 2D posters, since they attain greater attention, higher ad recall (unaided and aided), and increased brand name and brand package recognition (found only in study 1). In line with O'Brien and Myers (1985), the present study designates that unexpected information (such as a 3D element) is more memorable than expected information and facilitates recall and recognition. Nevertheless, the findings of the present study suggest that 3D posters do not realise increased levels of brand recall (unaided and aided). These results extend the prior research that highlighted the negative effect of incongruity on the brand memorability of unfamiliar brands (Lange & Dahlén, 2003). An incongruent ad increases the level of difficulty for consumers to recall an unfamiliar advertised brand. In the same vein, Sheinin, Varki and Ashley (2011) mentioned that ad novelty focuses consumers' attention on the elements of the advertisement and not on product information, thus, positively influencing ad recall but not brand recall.

However, study 1 also revealed that 3D posters perform better than traditional ones, mainly when other competing brands in the product category are being advertised. That is, 3D posters exhibit higher levels of attention, higher unaided and aided ad recall, and interestingly, higher aided brand recall, when the target poster is placed among other competitive posters. Keller (1991) also indicated that the distinctiveness of an advertisement increases the possibility for the ad and the brand to be encoded as distinct traces in the memory, and simultaneously decreases associative interference effects in recall. On the contrary, similar ads and brands are more likely to be strongly associated in the memory, a fact that increases the influence of competitive interference in memory, and reduces recall. The distinctiveness of a 3D poster differentiates both the ad and the brand in consumers' minds when multiple

brands advertise within the same product category. On the contrary, in the absence of competitive ads, there are no great differences between 3D posters and traditional ones in terms of attention, ad and brand recall. In this case, the product category of the advertised brand is by itself a salient element that differentiates the target brand from the others. Thus, it seems that consumers' pre-existing ad schemas per se are not sufficient to explain the superiority of 3D posters (at least in the present research context involving two product categories), but rather competing ads might be needed to either evoke a schema or function as 'points of comparison'.

Study 2 tested the role of ad exposure time on the relationship between the type of poster (3D or 2D) and attention and memory measures (recall and recognition), under a competitive advertising environment. The findings indicate that limited exposure time (of 12 seconds) does not have a negative effect on the influence of 3D executions on attention, recall and recognition. Particularly, it seems that 3D executions continue to positively affect consumers' attention to posters, ad (unaided and aided) recall, and interestingly, brand name recognition, despite the limited exposure time. Our findings confirm Edwards and Gangadharbatla (2001), who described the 3D executions as salient peripheral cues leading to peripheral processing of the ad, and focusing recipients' attention on the advertising experience and not on product attribute information. Hence, it appears that the limited exposure time hinders the processing of product information; 3D advertising graphics overshadow the brand, impairing brand (unaided and aided) recall and brand package recognition. As far as the positive effect of 3D executions on brand name recognition is concerned, it may be due to the fact that brand names were repeated twice in every poster and they may be considered as integral parts of the advertising experience.

MANAGERIAL IMPLICATIONS

The present study provides an answer to the questions why and when the advertising strategists should make use of 3D elements in posters; the decision for the use of a 3D element on a poster should be based on the advertising objectives and the level of competition.

A 3D poster could be effectively used when the objectives of the advertising strategy are to gain consumers' attention and increase ad recall and brand name recognition. A 3D poster is an effective creative approach even when the exposure time to the ad is limited (twelve seconds). Given that out-of-home advertising targets a market in motion, these findings offer new opportunities to advertisers, revealing that 3D posters can attract consumers' attention and improve ad recall and brand name recognition in limited exposure time.

Nowadays, consumers are 'bombarded' with thousands of advertising messages (Kotler & Keller, 2006) and are often exposed to the product claims of numerous brands with similar positioning (Mitchell, Walsh, & Yamin, 2005). Thus, advertisers seek new alternative forms of advertising in order to break through the clutter and attract customers' attention. Under such circumstances, 3D posters can be an effective and creative approach for advertisers. This study indicated that 3D posters can become one of the key strategic choices for advertised brands in order to gain differentiation from their competitors; 3D posters achieve better results in terms of attention (unaided and aided) recall and aided brand recall in the presence, rather than absence, of competing ads. This moderating role of competitive interference

suggests that consumers' memory for 3D posters is positively affected by exposure to competitive advertising. These positive effects are maintained even when consumers have less opportunity to process the posters. Taking into consideration that the contemporary out-of-home advertising is highly characterised by competitive conditions and limited ad exposure time, 3D posters offer a competitive solution to advertisers who wish to catch consumers' attention, increasing, at the same time, ad memorability.

Moreover, the findings of the present study suggest that advertisers should conduct an external competitive audit about the way their competitors are advertising out of home. Competitive advertising posters serve as points of comparison and play a key role in the effectiveness of 3D posters. By conducting such an audit, advertisers could be one step ahead of their competitors, evolving and adapting to new trends in advertising formats. In this manner, they would have the ability to exploit to a greater extent the power of 3D posters in a competitive advertising environment.

LIMITATIONS AND FUTURE RESEARCH

Inherent within any research, there are potential limitations that have an effect on the overall reliability and validity of the study. One limitation of this study is the use of a student sample in combination with an indoor/laboratory experiment. This type of experiment restricts the external validity of the findings. Moreover, the posters were undersized (A3) compared to some actual posters. However, the size analogy of the stimuli with the laboratory conditions could be considered as adequate.

In study 2, the participants were motivated to pay attention to the posters. One could say that this approach increased participants' motivation to process the advertisements via the central route. However, although they had the motivation to engage in cognitive thinking, they did not have the ability (due to the restricted exposure time) to centrally process the posters. Thus, it is believed that this process resulted in peripheral processing. Future research could extend the present study by testing the role of the participants' motivation in the 3D poster advertisement processing.

This study employs two laboratory experiments in an emerging and relatively unexplored area. For that reason, replication of this research is needed to validate the results as well as to fully understand the effectiveness of a 3D element in a poster. Moreover, it would be of great interest to explore the effectiveness of 3D in other media such as magazines or interactive media and to further analyse it under the scope of integrated marketing communications.

Further research regarding the effect of 3D posters on low or high involvement products, utilitarian or emotional products, and well-established or new products will shed more light in the advertising strategy arena. Determining whether or not our results are applicable to other product categories is one significant direction for additional research in the area.

REFERENCES

- Agnew, H.E. (1985). *Outdoor advertising*. New York: Garland Publishing.
- Algharabat, R., & Dennis, C. (2010a). Modelling the impact of 3D authenticity and 3D telepresence on behavioural intention for an online retailer. In D. Morschett, T. Rudolph, P. Schnedlitz, H. Schramm-Klein & B. Swoboda (Eds.), *European Retail Research, Chapter 4*, 24(2), 93-109. Weisbaden: Springer Gabler Verlag. doi: 10.1007/978-3-8349-6147-1_4
- Algharabat, R., & Dennis, C. (2010b). Using authentic 3D product visualisation for an electrical online retailer. *Journal of Customer Behaviour*, 9(2), 97-115. doi: 10.1362/147539210X511326
- Anderson, J.R. (1994). *Learning and Memory*. New York: Wiley.
- Arias-Bolzmann, L., Chakraborty, G., & Mowen, J.C. (2000). Effects of absurdity in advertising: The moderating role of product category attitude and the mediating role of cognitive responses. *Journal of Advertising*, 29(1), 35-49. doi: 10.1080/00913367.2000.10673602
- Bartlett, F.C., & Burt, C. (1933). Remembering: A study in experimental and social psychology. *British Journal of Educational Psychology*, 3(2), 187-192. doi: 10.1111/j.2044-8279.1933.tb02913.x
- Bhargava, M., Donthu, N., & Caron, R. (1994). Improving the effectiveness of outdoor advertising: Lessons from a study of 282 campaigns. *Journal of Advertising Research*, 34(2), 46-55.
- Burke, R.R., & Srull, T.K. (1988). Competitive Interference and Consumer Memory for Advertising. *Journal of Consumer Research*, 15(1), 55-68. doi: 10.1086/209145
- Chafkin, M. (2007). Ads and Atmospherics: Outdoor Campaigns are Suddenly Hip. *Inc. Magazine*, 29(2), 39-41.
- Dahl, D.W., Frankenberger, K.D., & Manchanda, R.V. (2003). Does it pay to shock? Reactions to shocking and nonshocking advertising content among university students. *Journal of Advertising Research*, 43(3), 268-280. doi: 10.1017/S0021849903030332
- Dahlén, M. (2005). The medium as a contextual cue: Effects of creative media choice. *Journal of Advertising*, 34(3), 89-98. doi: 10.1080/00913367.2005.10639197
- De Boer, C.N., Verleur, R., Heuvelman, A., & Heynderickx, I. (2010). Added value of an autostereoscopic multiview 3-D display for advertising in a public environment. *Displays*, 31(1), 1-8. doi: 10.1016/j.displa.2009.09.001
- Derbaix, C., & Pham, M.T. (1991). Affective reactions to consumption situations: A pilot investigation. *Journal of Economic Psychology*, 12(2), 325-355. doi: 10.1016/0167-4870(91)90019-P
- Derbaix, C., & Vanhamme, J. (2003). Inducing Word-of-Mouth by Eliciting Surprise: A Pilot Investigation. *Journal of Economic Psychology*, 24(1), 99-116. doi: 10.1016/S0167-4870(02)00157-5
- Donthu, N., Cherian, J., & Bhargava, M. (1993). Factors Influencing Recall of Outdoor Advertising. *Journal of Advertising Research*, 33(3), 64-72.
- Edwards, S.M., & Gangadharbatla, H. (2001). The novelty of 3D product presentations online. *Journal of Interactive Advertising*, 2(1), 10-18. doi: 10.1080/15252019.2001.10722054
- Fitts, R.L., & Hewett, W.C. (1977). Utilizing the Before After with Control Group Experimental Design to Evaluate an Outdoor Advertising Campaign. *Journal of Advertising*, 6(1), 26-39. doi: 10.1080/00913367.1977.10672675
- Grigorovici, D.M., & Constantin, C.D. (2004). Experiencing interactive advertising beyond rich media: Impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments. *Journal of Interactive Advertising*, 5(1), 22-36. doi: 10.1080/15252019.2004.10722091
- Guido, G. (1998). The Dichotic Theory of Salience: A Framework for Assessing Attention and Memory. *European Advances in Consumer Research*, 3(3), 114-119.
- Guido, G. (2001). *The salience of marketing stimuli: An incongruity-salience hypothesis on consumer awareness*. Springer Science & Business Media. doi: 10.1007/978-1-4615-1621-7

- Ha, H.-Y. (2005). The relationships between 3-D advertisings and risk perceptions on the web: The role of brand and emotion. *Journal of Current Issues & Research in Advertising*, 27(2), 55-65. doi: 10.1080/10641734.2005.10505181
- Hastie, R. (1981). Schematic principles in human memory. In E.T. Higgins, C.P. Herman, & M.P. Zanna (Eds.), *Social Cognition: The Ontario Symposium* (Vol. 1, pp. 39-88). Hillsdale, NJ: Erlbaum.
- Heckler, S.E., & Childers, T.L. (1992). The Role of Expectancy and Relevancy in Memory for Verbal and Visual Information: What is Incongruity? *Journal of Consumer Research*, 18(4), 475-492. doi: 10.1086/209275
- Henderson, S., & Landau, R. (1980). *Billboard art*. San Francisco: Chronicle Books.
- Hewett, W.C. (1975). The Significance of Human Curiosity in an Outdoor Advertising Experiment. *Journal of Business*, 48(1), 108-110. doi: 10.1086/295717
- Houston, M.J., Childers, T.L., & Heckler, S.E. (1987). Picture-word consistency and the elaborative processing of advertisements. *Journal of Marketing Research*, 24(4, November), 359-369. doi: 10.2307/3151383
- Hutter, K. (2015). Unusual location and unexpected execution in advertising: A content analysis and test of effectiveness in ambient advertisements. *Journal of Marketing Communications*, 21(1), 33-47. doi: 10.1080/13527266.2014.970823
- Jackson, S., & Jacobs, S. (1983). Generalizing about messages: Suggestions for the design and analysis of experiments. *Human Communication Research*, 9(2), 169-181. doi: 10.1111/j.1468-2958.1983.tb00691.x
- Keller, K.L. (1987). Memory factors in advertising: The effect of advertising retrieval cues on brand evaluations. *Journal of Consumer Research*, 14(3), 316-333. doi: 10.1086/209116
- Keller, K.L. (1991). Memory and evaluation effects in competitive advertising environments. *Journal of Consumer Research*, 17(4), 463-476. doi: 10.1086/208571
- Keng, C.J., & Liu, C.C. (2013). Can avatar and self-referencing really increase the effects of online 2-D and 3-D advertising? *Computers in Human Behavior*, 29(3), 791-802. doi: 10.1016/j.chb.2012.10.025
- Kotler, P., & Keller, K.L. (2006). *Marketing Management* (12th ed.) Upper Saddle River N.J.: Prentice Hall.
- Kovačič, A. (2012). How much attention does outdoor advertising attract and who profits? *Innovative issues and approaches in social sciences*, 5(3), 134-151.
- Lafaele, P. (2012). *Graphic Design and Animation Graduates 2012*. Retrieved from <https://gda2012.wordpress.com/paul-lafaele/>
- Lange, F., & Dahlén, M. (2003). Let's Be Strange: Brand Familiarity and Ad-Brand Incongruity. *Journal of Product and Brand Management*, 12(7), 449-461. doi: 10.1108/10610420310506010
- Lee, E.-J., & Schumann, D.W. (2004). Explaining the special case of incongruity in advertising: Combining classic theoretical approaches. *Marketing Theory*, 4(1/2), 59-90. doi: 10.1177/1470593104044087
- Lee, K.-Y., Li, H., & Edwards, S.M. (2012). The effect of 3-D product visualisation on the strength of brand attitude. *International Journal of Advertising: The Review of Marketing Communications*, 31(2), 377-396. doi: 10.2501/IJA-31-2-377-396
- Lee, Y.H., & Mason, C. (1999). Responses to information incongruity in advertising: The role of expectancy, relevancy, and humor. *Journal of Consumer Research*, 26(2), 156-169. doi: 10.1086/209557
- Li, H., Daugherty, T., & Biocca, F. (2002). Impact of 3-D advertising on product knowledge, brand attitude, and purchase intention: The mediating role of presence. *Journal of Advertising*, 31(3), 43-57. doi: 10.1080/00913367.2002.10673675
- Lichtenthal, D., Yadav, V., & Donthu, N. (2006). Outdoor advertising for business markets. *Industrial Marketing Management*, 35(2), 236-247. doi: 10.1016/j.indmarman.2005.02.006
- Lucas, G. (2011, July 20). *Dry The River 3D fly posters*. Creative Review [blog site]. Retrieved from <https://www.creativereview.co.uk/cr-blog/2011/july/dry-the-river-3d-fly-posters/>

- Macklin, M.C. (1994). The effects of an advertising retrieval cue on young children's memory and brand evaluations. *Psychology and Marketing*, 11(3), 291-311. doi: 10.1002/mar.4220110307
- Mandler, G. (1982). The Structure of Value: Accounting for Taste. In M.S. Clarke & S.T. Fiske (Eds.), *Affect and Cognition: The 17th Annual Carnegie Symposium on Cognition* (pp. 3-36). Hillsdale, NJ: Lawrence Erlbaum.
- Mandler, G. (1993). Approaches to a psychology of value. In M. Hechter, L. Nadel & R.E. Michod (Eds.), *The Origin of Values* (pp. 229-258). New York: Aldine De Gruyter.
- Mandler, J.M. (2014). *Stories, scripts, and scenes: Aspects of schema theory*. New York, London: Psychology Press.
- McQuarrie, E., & Mick, D. (1996). Figures of rhetoric in advertising language. *Journal of Consumer Research*, 22(4), 424-438. doi: 10.1086/209459
- MediaMe (2008, June 14). *Big Babol XXL | Ballon Poster 3*. MediaME.com Qatar. Retrieved from http://www.mediameme.com/en/image_media/ambient/big_babol_xxl_ballon_poster_3
- Meyer, W.U., Reisenzein, R., & Schützwohl, A. (1997). Toward a process analysis of emotions: The case of surprise. *Motivation and Emotion*, 21(3), 251-274. doi: 10.1023/A:1024422330338
- Meyers-Levy, J., & Sternthal, B. (1991). Gender differences in the use of message cues and judgments. *Journal of Marketing Research*, 28(1), 84-96. doi: 10.2307/3172728
- Meyers-Levy, J., & Tybout, A. (1989). Schema congruity as a basis for product evaluation. *Journal of Consumer Research*, 16(1), 39-54. doi: 10.1086/209192
- Miller, G. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81-97. doi: 10.1037/h0043158
- Mitchell, V.W., Walsh, G., & Yamin, M. (2005). *Toward a conceptual model of consumer confusion*. *Advances in Consumer Research*, 32(1), 143-150.
- O'Brien, E.J., & Myers, J.L. (1985). When comprehension difficulty improves memory for text. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 11(1), 12-21. doi: 10.1037/0278-7393.11.1.12
- OAAA (2015a). *Out of Home Advertising: OOH Glossary of Terms*. Outdoor Advertising Association of America (OAAA). Retrieved from <https://www.oaaa.org/OutOfHomeAdvertising/OOHGlossaryofTerms.aspx#o>
- OAAA (2015b). *News & Events: Out of home advertising up 1.1% to \$7.0 Billion in 2014*. Outdoor Advertising Association of America (OAAA). Retrieved from <https://www.oaaa.org/NewsEvents/News/IndustryRevenue/tabid/322/id/4159/Default.aspx>
- PRS (1983). *The Visibility Achieved by Outdoor Advertising: A Comprehensive Evaluation*. Perception Research Services, Inc. (PRS). Washington, DC: Outdoor Advertising Association of America, Inc.
- Ratneshwar, S., & Chaiken, S. (1991). Comprehension's role in persuasion: The case of its moderating effect on the persuasive impact of source cues. *Journal of Consumer Research*, 18(1, June), 52-62. doi: 10.1086/209240
- Reisenzein, R. (2000). Exploring the strength of association between the components of emotion syndromes: The case of surprise. *Cognition and Emotion*, 14(1), 1-38. doi: 10.1080/026999300378978
- Sheinin, D.A., Varki, S., & Ashley, C. (2011). The differential effect of ad novelty and message usefulness on brand judgments. *Journal of Advertising*, 40(3), 5-18. doi: 10.2753/JOA0091-3367400301
- Sjodin, H., & Törn, F. (2006). When communication challenges brand associations: A framework for understanding consumer responses to brand image incongruity. *Journal of Consumer Behaviour*, 5(1), 32-42. doi: 10.1002/cb.44
- Solomon, D. (2003, June). *Does Out-Of-Home Advertising Work? ESOMAR*. Online and OOH Audience Measurement: LA. Retrieved from <http://www.warc.com/fulltext/esomar/79336.htm>
- Srull, T.K. (1981). Person memory: Some tests of associative storage and retrieval models. *Journal of Experimental Psychology: Human Learning and Memory*, 7(6), 440-463. doi: 10.1037/0278-7393.7.6.440

- Slull, T.K., Lichtenstein, M., & Rothbart, M. (1985). Associative storage and retrieval processes in person memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 11(2), 316-345. doi: 10.1037//0278-7393.11.2.316
- Taylor, C.R. (2012). Back to the future: some topics we should not forget about in advertising research. *International Journal of Advertising: The Review of Marketing Communications*, 31(4), 699-702. doi: 10.2501/IJA-31-4-699-702
- Taylor, C.R., Franke, G.R., & Bang, H.K. (2006). Use and effectiveness of billboards: Perspectives from selective-perception theory and retail-gravity models. *Journal of Advertising*, 35(4), 21-34. doi: 10.2753/JOA0091-3367350402
- van Meurs, L., & Aristoff, M. (2009). Split-second recognition: What makes outdoor advertising work? *Journal of Advertising Research*, 49(1), 82-92. doi: 10.2501/S0021849909090011
- van Reijmersdal, E.A. (2011). Mixing advertising and editorial content in radio programmes. *International Journal of Advertising: The Review of Marketing Communications*, 30(3), 425-446. doi: 10.2501/IJA-30-3-425-446
- Wilson, T.N. (1952). *Essentials of outdoor advertising*. New York: Association of National Advertisers.
- Wilson, R.T., & Till, B.D. (2008). Airport Advertising Effectiveness: An Exploratory Field Study. *Journal of Advertising*, 37(1), 59-72. doi: 10.2753/JOA0091-3367370105
- Wilson, R.T., & Till, B.D. (2011). Effects of outdoor advertising: Does location matter? *Psychology & Marketing*, 28(9), 909-933. doi: 10.1002/mar.20418
- Witkowski, T.H. (2003). World War II Poster Campaigns: Preaching Frugality to American Consumers. *Journal of Advertising*, 32(1), 69-82. doi: 10.1080/00913367.2003.10639053
- Yim, M.Y.-C., Drumwright, M.E., & Cicchirillo, V.J. (2012). How Media Novelty AND Presence Affect Consumer Evaluations: The Case OF Stereoscopic 3-D Advertising. In *American Academy of Advertising Conference Proceedings* (Online, p. 37). American Academy of Advertising.

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